

# PATENT ABSTRACTS OF JAPAN

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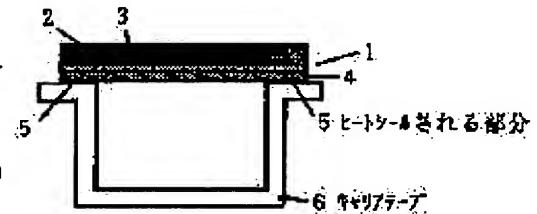
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## (54) COVER TAPE FOR PACKAGING CHIP TYPE ELECTRONIC PART

### (57)Abstract:

**PURPOSE:** To stabilize peel-off strength with time at a high temperature or high humidity by manufacturing a cover tape by dispersing styrene or an ethylene-maleic anhydride copolymer into a thermoplastic resin.

**CONSTITUTION:** A transparent biaxially oriented film is used as an external layer 2, and has thickness of 6-100μm and high rigidity. Polyethylene is used for increasing laminating strength for an intermediate layer 3 when an adhesive layer is extrusion-laminated, and a thermoplastic resin having transparency is employed as the adhesive layer 4. A substance having characteristics, in which the substance can be heat-sealed with a carrier tape 6 made of plastics as an opposite material, is selected by each single body or combination thereof. Styrene or an ethylene-maleic anhydride copolymer is dispersed uniformly into the adhesive layer, and 0.1-100 pts.wt styrene or the copolymer is added to the 100 pts.wt. thermoplastic resin of the adhesive layer. A change with time is not inhibited when styrene or the copolymer is less than 0.1 pts.wt., and dispersibility to adhesives is deteriorated remarkably when it is more than 100 pts.wt.



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**CLAIMS****[Claim(s)]**

[Claim 1] It is the covering tape for a chip mold electronic-parts package which is a covering tape which can carry out the heat seal of the receipt pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously, and this covering tape is a biaxially oriented film whose outer layer is polyester, polypropylene, or nylon, and is characterized by for the middle class to use a polyethylene film as thermoplastics, and for a glue line to use compatible [ of styrene or the ethylene maleic-anhydride copolymerization object ], and to change.

[Claim 2] The covering tape for a chip mold electronic-parts package according to claim 1 in which styrene or an ethylene maleic-anhydride copolymerization object comes to carry out 0.1-100 weight section compatible to the thermoplastics 100 weight section [claim 3] The covering tape for a chip mold electronic-parts package according to claim 1 or 2 on which the thermoplastics of a glue line changes combining polyethylene system resin, polyurethane system resin, acrylic resin, polyvinyl chloride system resin, ethylene vinyl acetate system resin, polyester system resin, ionomer system resin, or these [claim 4] The adhesive strength of a covering tape and a carrier tape is seal width of face. Covering tape for a chip mold electronic-parts package according to claim 1, 2, or 3 whose thickness of a glue line it is 10-120gr per mm, and is 10-80micro [claim 5] The covering tape for a chip mold electronic-parts package according to claim 1, 2, 3, or 4 whose visible-ray transmission of a covering tape is 75% or more

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]****[0001]**

[Industrial Application] This invention protects chip mold electronic parts from contamination, on the occasion of storage of chip mold electronic parts, transportation, and wearing, since it mounts in an electronic-circuitry substrate, it is aligned, and it relates to the covering tape by which a heat seal may be carried out to the carrier tape made from plastics which formed the receipt pocket among the package objects which have the function which can be taken out.

**[0002]**

[Description of the Prior Art] In recent years, chip mold electronic parts for surface mounts, such as transistors including IC, diode, a capacitor, and a piezoelectric-device register, are packed and supplied to the package object which consists of a covering tape which can carry out the heat seal of the pocket which can be contained, and by which embossing shaping was carried out to the carrier tape made from plastics formed continuously, and a carrier tape according to the configuration of electronic parts. After the electronic parts of contents exfoliate the covering tape of a package object, they are taken out automatically and the surface mount is carried out to the electronic-circuitry substrate. Where the seal of the covering tape is carried out to a carrier tape, when it was kept and was especially kept elevated temperatures, such as summer, or under highly humid, the trouble of PIRUOFU reinforcement having become strong with time, or becoming weak had occurred. The suitable means is not yet established that this should be solved.

**[0003]**

[Problem(s) to be Solved by the Invention] This invention has PIRUOFU reinforcement in offering the covering tape stabilized with time, when the seal of the covering tape is carried out to a carrier tape and it is kept an elevated temperature or under highly humid.

**[0004]**

[Means for Solving the Problem] The result which aging after carrying out the seal of the covering tape to a carrier tape tended to obtain the small covering tape, and studied wholeheartedly under an elevated temperature and highly humid that this invention should solve the above problems, as an outer layer -- a biaxially oriented film -- using it -- as a glue line -- styrene -- or Knowledge that the complex film which coated the thermoplastics which carried out compatible to the ethylene maleic-anhydride copolymerization object is transparent and can serve as a covering tape with a good property is acquired, and it comes to complete this invention. This invention is the covering tape which can carry out the heat seal of the pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously. Namely, this covering tape An outer layer is a biaxially oriented film which is polyester, polypropylene, or nylon. The middle class between an outer layer and a glue line is a polyethylene film. A glue line Polyurethane system resin, the thermoplastics which consists of acrylic resin, polyvinyl chloride system resin, ethylene vinyl acetate system resin, polyester system resin, or these combination -- styrene -- or It is the covering tape for a chip mold electronic-parts package characterized by distributing an ethylene maleic-anhydride copolymerization object and changing. The addition of styrene or an ethylene maleic-anhydride copolymerization object of the desirable mode of this invention is the covering tape for a chip mold electronic-parts package characterized by being the 0.1 - 100 weight section, for the adhesive strength of this covering tape and a carrier tape being 10-120gr per seal width of face of 1mm, and the visible-ray transmission of this covering tape being 75% or more to the thermoplastics 100 weight section of a glue line.

**[0005]**

[Function] When drawing 1 explains the component of the covering tape 1 of this invention, an outer layer 2

is the biaxially oriented film of biaxial-stretching polyester film, a biaxial-stretching polypropylene film, and one of biaxial-stretching nylon films, and it is a rigid high film in the transparency whose thickness is 6-100micro. In case the middle class 3 does the extrusion lamination of the glue line, in order to raise lamination reinforcement, polyethylene is used, glue lines 4 are thermoplastics (for example, polyurethane system resin, acrylic resin, ethylene vinyl acetate system resin, polyvinyl chloride system resin, polyester system resin, etc.) which has transparency, and what has the property which can carry out a heat seal to the carrier tape 6 made from plastics of partner material with each simple substance or its combination is selected. And styrene or an ethylene maleic-anhydride copolymerization object is distributed by homogeneity in the glue line, the addition is the 0.1 - 100 weight section to the thermoplastics 100 weight section of a glue line, and its one to 20 section is still more preferably good. If fewer than the 0.1 weight section, aging cannot be stopped, and if [ than the 100 weight sections ] more, the dispersibility to adhesives gets remarkably bad and it is not suitable for production. Moreover, about the formation approach of heat-sealing mold adhesives, the extrusion laminating method is cheap, and it is desirable even if it sees from a health side. Moreover, 10-80micro are desirable still more desirable, and the thickness of a glue line has 20-good 50micro. In 10micro or less, film production is difficult thickness on the property of a lamination machine, in 80micro or more, the diameter of a volume at the time of a long volume becomes large, and difficulty is in storage of a film. In addition, both may be laminated through the glue line of heat-curing molds, such as an isocyanate system and an imine system, in order to raise the lamination reinforcement of an outer layer and an interlayer. Moreover, since it is constituted so that the visible-ray permeability of a covering tape may become 75% or more, the alphabetic character indicated by the internal electronic parts or the electronic parts enclosed with the carrier tape can check vividly with viewing or a machine. Although the check of inner electronic parts can be performed if lower than 75%, distinction of the alphabetic character indicated by electronic parts is difficult.

[0006]

[Example] Although the example of this invention is shown below, this invention is not limited at all by these examples. The <<examples 1, 2, 3, 4, and 5, the examples 1, 2, 3, and 4 of a comparison, 5>> The covering tape of lamination which produced the glue line which is the mixture of thermoplastics and styrene, or an ethylene maleic-anhydride copolymerization object with the extrusion laminator at 15micro of thickness to the polyethylene film side of the lamination article of a biaxially oriented film and a polyethylene film, and was shown in drawing 1 was obtained. The obtained covering tape was heat sealed after the slit to 13.4mm width of face with the carrier tape made from PS of 16.0mm width of face, and PIRUOFU reinforcement was measured. Moreover, the visible-ray permeability of a covering tape prototype was measured, and the characterization result was shown in Tables 1 and 2.

A bed depth is the outer layer 25micro; middle class. 15micro; glue line Resin used 15micro: A styrene-maleic-anhydride copolymerization object (SMA), ethylene-maleic-anhydride copolymerization object (EMA).

Maleic-anhydride copolymerization significant-work character: Thermoplastics of a glue line Addition to the 100 weight sections (weight section).

Heat-sealing conditions: 140degree C/20psi/1sec. Shilu width of face 0.4mmx2 Peel conditions : 180-degree Peel, Peel speed 300 mm/min.n=3[0007]

表 1

		実 施 例				
		1	2	3	4	5
接 着 層	熱可塑性樹脂 SMA EMA	EVA 1	EMMA 10	EEA 20	EMAA 5	アイオ/マー 15
ピールオフ強度(g)						
初期強度		47	45	50	44	44
60℃×30日		60	55	53	62	55
可視光線透過率(%)		96.7	96.0	95.3	96.4	95.8

表 2

		比 較 例				
		1	2	3	4	5
接 着 層	熱可塑性樹脂 SMA EMA	EVA 0.05	EMMA 120	EEA 0.05	EMAA 110	アイオ/マー
ピールオフ強度(g)						
初期強度		51	52	50	53	55
60℃×30日		103	100	120	108	138
可視光線透過率(%)		97.3	90.1	98.0	91.2	99.0

[0008]

[Effect of the Invention] When this invention was followed and it is kept an elevated temperature or under highly humid where the seal of the covering tape is carried out to a carrier tape, the trouble of PIRUOFU reinforcement becoming strong with time, or becoming weak stops occurring.

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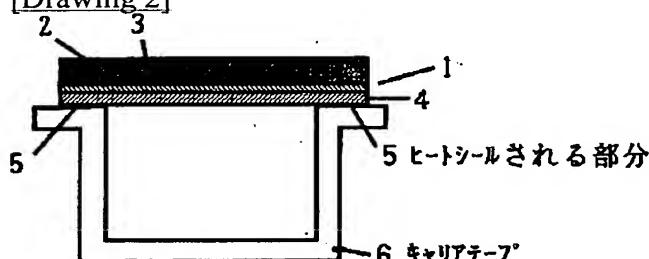
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**DRAWINGS**

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**[Drawing 1]****[Drawing 2]**

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